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OBSERVATIONS ON THE BIRDS OF JAMAICA,
WEST INDIES.

I. NOTES ON THE HABITS OF THE YELLOW-BILLED TROPIC
BIRD (*Phaethon flavirostris*).

BY W. E. D. SCOTT.

IN beginning a series of papers for this journal, recording the results of some observations carried on while in the Island of Jamaica, West Indies, during the past winter, I wish to publicly acknowledge my indebtedness and to express my thanks for the many courtesies extended to me by the following gentlemen: His Excellency Sir Henry A. Blake, K. C. M. G., Governor of the Island; the Hon. Neale Porter, Colonial Secretary, etc., etc.; the Hon. James Allwood, Under Colonial Secretary, etc., etc.; the Hon. Valentine G. Bell, C. E., Director of Public Works; the Hon. W. Bancroft Espeut, of Portland, and the Hon. W. Fawcett, B. Sc., F. L. S., Director of Public Gardens and Plantations. To Oscar Marescaux, Esq., of Kingston, and Robert B. Campbell, Esq., Superintendent of the Jamaica Railway, and particularly to Frederic Wesson, Esq., of New York City, I am under special obligation.

After some preliminary work carried on at Stony Hill, some nine miles north of Kingston, I was able to locate myself, about the 20th of December, 1890, on an estate known as Boston, in the parish of Portland, and belonging at this time to F. A. Jenoure, Esq., from whom I rented the house for the succeeding three months. Portland, named from the Duke of Portland, Governor of the Island from 1722-1726, is a parish at the north-east end of the island, extending from the seacoast to the summit of Blue Mountain range, the highest elevations of which are attained in this region. Boston is an old sugar estate of some eleven hundred acres in extent, comprising cultivated fruit land, pasture, and a large area of forest or woodland. It lies between Port Antonio, the principal town of the region, and Priestman's River, a hamlet at the mouth of the river of the same name, being nine miles from the former town and one mile from the latter. The extreme north-east point of the Island of Jamaica is just in front of the dwelling house of the estate.

There is little level land at this point even near the coast. The old house, remnant of the splendor of the 'sugar days,' stands back from the sea perhaps a quarter of a mile and at an elevation of about three hundred feet, so that the outlook on the sea is peculiarly fine. The hill on which the house is situated is abrupt in descent for nearly if not quite a hundred feet. Between the hill and the sea stretches a pasture of beautifully green grass, that is kept cropped to a short lawn-like turf by many sheep and cattle belonging to the place. On the far side of the field are many cocoanut palms, some thatch palms, and tall graceful bamboos. Passing through this growth one comes out on the edge of a low cliff, some forty feet in height, and at one's feet lies the Caribbean Sea.

Daily during the stay that was made at Boston looking over the panorama lying below and in front of the house, white Gull-like birds were to be seen passing now one way, now another, along the coast. In the distance they seemed very much like large Terns of some kind, and the people of the region were familiar with them under the name of 'Boobies.'

It was rarely calm enough to launch a boat through the surf during the early part of the time spent at Boston, and there were so many new and interesting problems presenting themselves in quick succession among the land birds, that weeks slipped by and

all that I knew about the white Gull-like birds that were present daily just a little way out at sea was what has been recorded in the preceding lines. I was talking about birds to some black men who were working at a new canoe, at a point about a mile from the house, where a break in the cliffs forms a little open bay (known as Big Bay), with a couple of hundred yards of hard sand beach where boats can be laid up and from which they could be launched when the surf is not too high. These men said that at a point just outside the bay and southwest of it half a mile was a cave where the 'Boobies' roosted and were almost always to be found.

After this again several weeks elapsed before the surf was subdued enough to be safely passed in a boat, but finally on the 25th of February, Mr. Dugmore, a friend who was with me, and to whom I am indebted for much aid in shooting specimens for me while on the island, went off at daylight to solve the question as to what the 'Boobies' were. He returned at about halfpast ten in the morning and I met him on the beach. There was a very considerable sea running that made the landing tedious, but the first bird my friend held up to me before the boat reached the shore, I recognized at once as the Yellow-billed Tropic Bird (*Phaethon flavirostris*).

I have since that time spent three days on the sea coasting along the north shore of Jamaica and have seen many of the birds in question both flying and alighted on the projections on the face of the cliffs. This trip was from March 17 to March 20 of the present year. During my stay at Boston we did not observe any kind of Gull or Tern and cruising as I have mentioned for quite a hundred miles along the shore not a Gull or Tern was noted, but the Yellow-billed Tropic Birds were constantly seen. This then is one of the homes of this species and a point where it is fairly abundant. The following records of the habits and breeding of the birds in question are based on notes made by myself and Mr. Dugmore.

During the months of December, January, February, and March, and presumably at other times of the year the species under consideration is quite common along the entire north side of the island, wherever the character of the shore affords the birds suitable shelter for resting by day or roosting at night. These cliffs are of white limestone and vary in height, seventy-

five feet in height from the sea level being probably the maximum. This limestone is of course quite porous and at many points on the island, north along the coast and inland, are noted caves and caverns of greater or less extent. Along the coast the constant beating of the surf has honey-combed this rather soft rock and the apertures vary from small, shallow indentations to holes of considerable size and depth and occasional caverns of very considerable magnitude, one of which I shall have occasion to describe presently in greater detail. Many of the smaller cavities have several openings, and it is in such places that the birds taken seem most attracted to rest and to roost. From my note book I copy the following accounts of three excursions made successively on February 25, 26, and 27 of the present year.

“Priestman’s River, Jamaica, W. I., February 25, 1891.—During my stay at ‘Boston’ I have almost daily seen large white birds flying off shore at short distances, but having no good glass have been unable to identify them. Today Mr. Dugmore went after them and secured ten individuals. He says he saw no other kinds of ‘Gulls’. Of ten birds taken eight were shot and two were taken from holes in the cliffs. The females indicate that the breeding season is near, they being about to lay, and it is probable that some have already laid.”

“Same locality, February 26, 1891.—Mr. Dugmore went out today and again saw many Tropic Birds but no other kinds of ‘Gulls’. Ten individuals were secured and as before two of these were taken alive from holes in the face of the rocks and eight were shot. All the birds examined yesterday and those examined today confirm me in my belief that they are actually breeding or about to breed. The two individuals taken yesterday alive from the holes in the cliffs, as well as those secured in a like manner today, are *all males*. These birds were taken about ten o’clock in the morning, and were probably resting. Many others were seen going in and out of the holes in inaccessible places. These holes are caused by erosion from the water dashing against the rock, and the cavities preferred seem to be those that are from two to five feet deep, not very high above ordinary high water mark, and such as have two or more openings.

“I learn from the natives that they are aware that these birds lay their eggs in these places and that they roost in such loca-

tions at night. The birds appear every morning just after the sun is up and are then to be seen in the greatest numbers. By ten o'clock they have either gone far out to sea to continue feeding or have retired to their roosting places in the cliffs. Their absence is noticeable from about the time in the morning indicated until just before sundown, when a few, not nearly so many as may be observed in the morning, are to be observed flying along outside of the cliffs. The native fishermen say that most of the birds return to their roosting places when it is almost too dark to see."

The following notes on coloration were made from twenty individuals in the flesh taken February 25 and 26, 1891.

"There is apparently no variation among the individuals I have examined that correlates with sex, and no external features by which the sex can be determined. But there is a very considerable difference in the length and color of the long central tail feathers that presumably correlates with the age of the individual. Frequently the webs of the long central tail feathers are pure dead white or nearly white and there is every gradation between this and deep intense salmon color. This salmon color in some individuals, presumably very adult ones, extends in the live bird to the feathers of the back and breast in a rather mottled manner. This color is evanescent, like the blush tint on some Gulls and Terns. The bills vary from light straw color to deep reddish orange, the straw-colored bills being lightest in those individuals which have the central tail feathers pure white. This phase of plumage is probably characteristic of birds of a year old and under two years old."

"Priestman's River, Jamaica, W. I., February 27, 1891.— Today Mr. Dugmore obtained fifteen individuals of *Phaethon flavirostris* and much additional information regarding the birds. Of these birds five were shot, eight were taken in a cave, which opened by a small mouth from the cliff, and two were secured in holes in the cliff as already recorded. The cave where the birds were found had a very small entrance, about large enough for a man to crawl into, in the face of the cliff. This was approachable only in the calmest weather, in a boat. The entrance led at once into a spacious chamber of irregular shape. Going directly back from the mouth the cavern was some sixty feet deep. It was at its widest point some seventy or eighty feet, and oval in

shape as a whole.' The bottom was covered with coarse sand and gravel, and boulders of varying size, evidently having fallen from above, were scattered thickly over this floor except at the extreme back of the cavern furthest from the sea. The height of the roof or ceiling, which was of an uneven rough surface, was about twenty-five feet, and many bats were hanging wherever the projections or inequalities afforded them opportunity. Toward the back of this chamber five birds were secured, each one sitting on a single egg. The place chosen for the nesting site, for this is all it can be termed, was in all these cases where two boulders on the gravelly floor lay close together, just leaving room on the ground for the birds to crawl between them. Two birds were obtained in like situations that had not laid, and may have been simply resting. The females were in every case the birds that were sitting on the eggs, and it was quite evident upon dissection that the single egg forms the complement in these cases. The birds taken from the holes in the cliff, and also those taken in this cave, were very tame, and were captured readily without attempting to escape. Later on the same day a bird was found with a single egg laid at the bottom of one of the holes in the face of the cliff."

The eggs thus secured, six in all, are before me. They vary very considerably both as to color and markings as well as in size. No. 1 is not unlike the darker examples of the eggs of the Fish Hawk (*Pandion haliaëtus carolinensis*) in color and shape, though rather smaller being 2.30×1.70 inches. This egg contained a chick almost ready to be hatched. The extreme in variation as far as color is concerned is No. 2, a fresh egg, having a very light ground color, profusely and evenly spotted all over with irregularly shaped dark purplish brown spots. It measures 2.12×1.50 inches.

No. 3 is of a lavender brown color, and its profuse, irregular markings, which are but little darker, are of a similar shade. It is 2.22 long and 1.52 in the smaller diameter, and contained an embryo about half developed.

No. 4 is much the shorter of the six before me, but does not differ much from the others in its smaller diameter. It measures 1.98×1.51 inches. Its ground color is light cream. At the larger end this is profusely spotted with fine markings of a dark purplish brown. At the more acute or pointed end these mark-

ings are quite as profuse but of a very much lighter shade than those of the larger end. And there is an area between the two extremes almost devoid of any markings. This makes a sort of light belt about the egg, rather more than three-quarters of an inch wide. This egg contained a chick almost ready to be hatched. The other two eggs, Nos. 5 and 6, are similar in general appearance to Nos. 1 and 3 respectively and measure (No. 5) 2.33×1.60 inches, (No. 6) 2.18×1.55 inches. They were both slightly incubated.

There was no attempt at nest building in any of the cases noted, the egg being laid directly on the coarse sand or gravel, or on the dirt that had accumulated in the bottom of the hole.

I have seen these birds all the way along the north shore of the island from a point known as Hector's River on the east to Lucea on the west, wherever the cliffs afforded them shelter. They act very much like the larger Terns, the movements of the wings and method of feeding being very similar. The stomachs of the birds examined contained fragments of a species of squid or small cuttlefish, about four or five inches in length, and this was apparently the favorite food, though small fish from two to four inches in length were found mixed with the food before mentioned in four individuals.

On the 15th of March, a day or two before I left Boston, a native secured for me from one of the breeding places in the cliff, a young bird which I should think was at least a week or ten days old. It is No. 11325 of my Register and is a female. It is covered with rather sparse, long white down, and the quills of the wings and tail just begin to show. A space in front of the eye and reaching to the bill is bare of feathers. This bare region extends below the eye to the gape, and thence narrowly back of and narrowly around the eye. The color of the bare skin in this region in the live young bird is dark dull brown. Iris brown. Feet black. Bill yellowish with last quarter of an inch on both mandibles brownish black.

In breeding the birds seem eminently gregarious and the colonies at different points often reach an aggregate of at least fifty pairs. At sea, far out of sight of land, the birds are much more solitary in their habits, single birds being frequently met with, and it has been rare in my experience to meet with more than four individuals together in such locations. It may interest the

readers of this paper to have quoted in connection with the present sketch, the experience of the late Philip Henry Gosse, Esq., published in March, 1847. On page 400 of 'The Birds of Jamaica,' the author speaks of the only Tropic Bird he was aware of under the head of *Phaëthon aethereus* Linn.—a single bird which he "presumes to have been an immature individual"; and says further: "It is mentioned to me as one of the constant frequenters of the Pedro Kays." This is the only individual from the mainland that came under the notice of this very careful observer, and it is the more curious, inasmuch as Mr. Gosse resided, while in Jamaica, on the sea coast. In speaking of his work, on page 70 of his 'Birds of Jamaica' he says, "Every day through the winter months, my almost undivided attention was given to birds; and . . . from August to April about thirteen hundred specimens of birds fell into my hands, more than one thousand of which were shot by myself and my servants." The Pedro Kays mentioned are four small islands, situated some forty to fifty miles southwest of Portland Point on the south coast of Jamaica. It seems hardly probable, that the Yellow-billed Tropic Bird could have been as common in Gosse's day as now, for so conspicuous a species as it is at present could hardly have escaped the observation of so keen a worker, aided as he was by friends in almost every part of the island, the parish of Portland being referred to many times in his work. In reviewing in the present series of papers the work that has been accomplished during the past winter, I shall have occasion from time to time to make further comparisons, for the very accurate records left by Mr. Gosse form a basis for such work, and elements have entered into the fauna of the Island that have greatly modified the avifauna as it existed a little more than fifty years ago.

YELLOW-BELLIED WOODPECKERS AND THEIR UNINVITED GUESTS.

BY FRANK BOLLES.

OF THE seven species of Woodpeckers which I have found in the region of Mt. Chocorua, New Hampshire, the Yellow-bellied